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# ***ENERGY EFFICIENCY & CLIMATE CHANGE REPUBLIC OF SERBIA***

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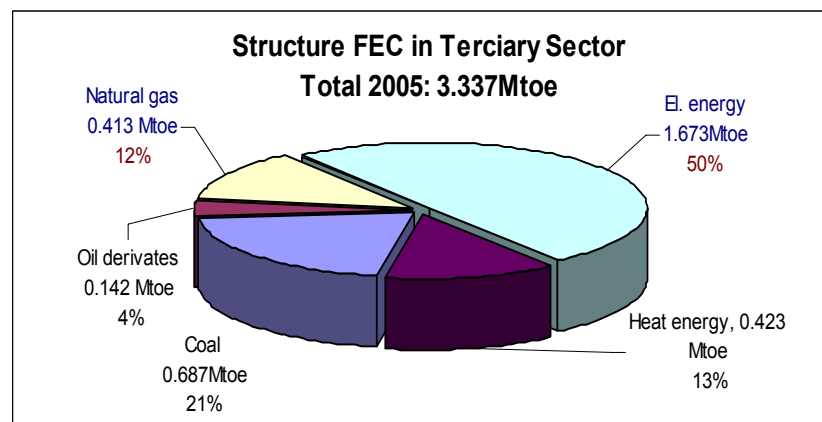
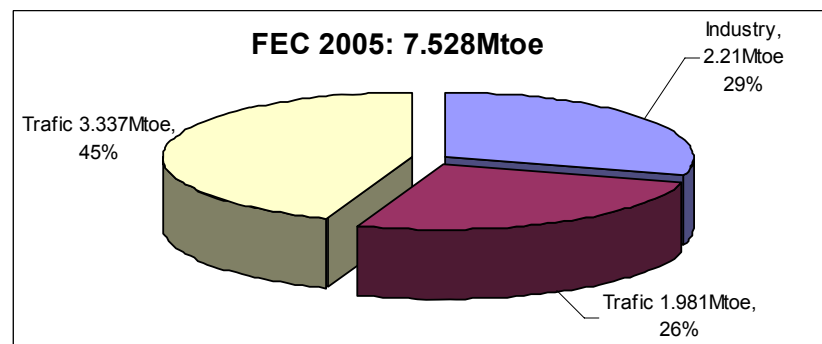
Antonela Solujic,  
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Ministry of Mining and Energy



*Geneva, Jun 2007*

# Current state of energy consumption

- **Low energy consumption per capita (vs EU)**
  - 1.9 toe/cap - Up to 3 times less primary energy consumption
  - 3.5 MWh/cap - Up to twice less electricity consumption
- **High energy intensity**
  - **Low energy efficiency at demand side but also low effectiveness of the economy**
  - **EI 0,9-0.68 toe/1000\$ (several times higher than EU-15)**
- **High losses in energy conversion and transportation (FE to PE ratio ~ 51%)**
- **Relatively low import dependency (~40%)**
- **FEC in tertiary sector - non convenient structure (~50% electricity, ~0.12 gas)**



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# *Existing Legal framework*

## ❖ **Energy Law (2004)**

### ➤ **Energy policy:**

... **Creating conditions to increase energy efficiency**

### ➤ **Institutional Framework**

➤ Energy Agency (Regulator)

➤ **Energy Efficiency Agency – SEEA**

➤ TSMO – Transmission and Market System Operator

### ➤ **Structural Changes**

➤ Public Energy Companies restructuring

### ➤ **New Actors**

➤ Individual Power/ Heat producers

▪ Privileged Power/Heat Producers

➤ Eligible customers

## ❖ **Law on environmental protection**

## ❖ **Law on Construction**

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## *Existing Strategic framework*

- ❖ **Energy Sector Development Strategy by 2015**  
(Parliament - May 2005)
- ❖ **Strategy on economic development of Republic of Serbia** (GoS)
- ❖ **National Environmental Strategy** (GoS)
- ❖ **Strategy on cleaner production** (under development)



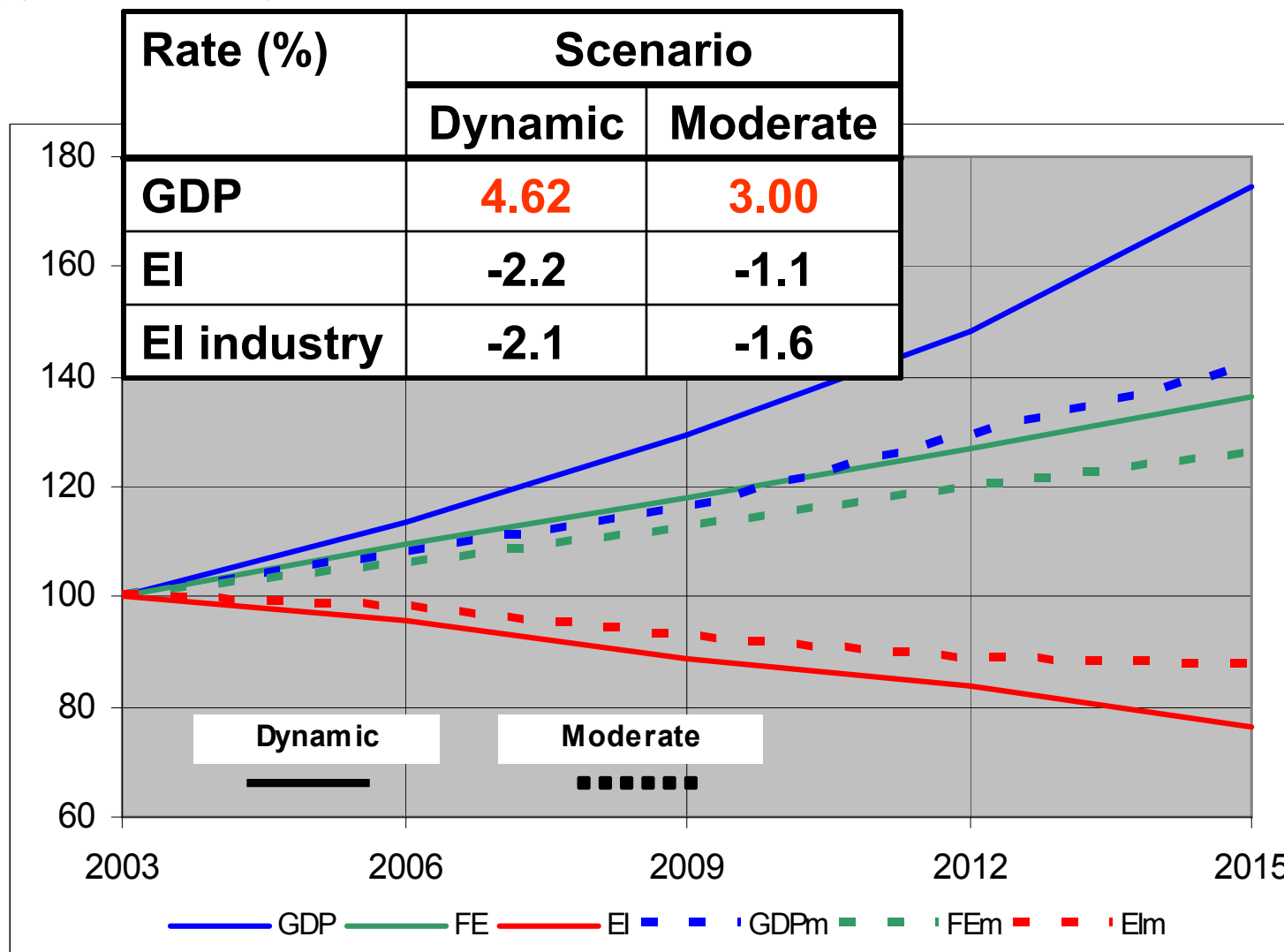
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# *Energy Sector Development Strategy by 2015 - Priorities*

- **I Priority of continuous improvement of technological and operating performance of energy sources and facilities**
- **II Priority of rational use of energy products and increase of energy efficiency (production, distribution and utilization)**
  - **Substitution of power for thermal services in Building sector with gas or DHS**
  - **Increased operating efficiency of thermal sources in industry and municipal services**
  - **Decrease losses of electrical (DS) and thermal energy in DHS, Industry and buildings**
  - **Introduction of new energy efficient electric appliances/equipment/systems**



# Energy Policy Objectives



Source: Energy Development Strategy until 2015,  
Parliament, May 2005. Geneva, Jun 2007

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## *Existing Institutional framework*

- ❖ **Ministry of Mining and Energy**
  - Energy policy, legislation
- ❖ **Ministry of Environmental Protection**
  - Environmental protection policy, legislation
- ❖ **Ministry of Science**
  - Scientific development
- ❖ **Serbian Energy Efficiency Agency**
  - Programs, measures, technical regulations for increase of EE
  - Implementation of EE projects
- ❖ **Regional Energy Efficiency Centers**
  - Implement EE projects
- ❖ **Serbian Industrial Energy Efficiency Network**
  - Awareness and training, benchmarking
- ❖ **Energy Managers in Municipalities and Industry**
  - to be introduced



# *Institutions*



■ Serbian Energy Efficiency Agency

● Regional EE Centres

• Belgrade

• Novi Sad

• Nis

• Kragujevac

• Kraljevo

▲ Industrial EE network

Grant by the Kingdom of Norway



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# *POS 2007-2012*

## **Module on Energy Efficiency - Barriers**

- **Low motivation of energy consumers**
  - low energy prices and price disparity
  - relatively high investment costs and low life standard
- **No incentive instruments**
- **Low institutional capacities**
- **Expensive loans and non attractive loan conditions**
- **Low financial capability of industry and citizens**
- **Undeveloped market of EE products and services**
- **Lack of awareness and information**

\* POS 2007-2012: Energy Sector Development Strategy by 2015 Implementation Program for the period 2007-2012



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# *POS 2007-2012*

## **Module on Energy Efficiency – Measures**

- **Create favorable regulatory framework**
  - **Law on energy efficiency** and corresponding secondary regulation (Energy management, EU EE directives etc)
- **Introduction of stimulating financial measures for EE**
  - **Energy Efficiency Fund**, tax alleviation and other subsidies
  - “Green” public procurement,
  - CDM Projects
- **Strengthen Institutional framework**
  - **MoME**
  - **SEEA**
  - **REECs**
  - **SIEN**
  - **Energy managers**
- **Rising awareness, promotion, education**



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# *POS 2007-2012*

## **Module on Energy Efficiency - Measures**

### **Technical measures:**

#### ➤ **Industry:**

- ✓ Utilization of waste heat (savings 20%)
- ✓ Replacement of electrical motors (4000MW) with eef1 | eef2 (saving el energy 188 GWh/y)
- ✓ ...

#### ➤ **Buildings:**

- ✓ Fuel switching (electricity for heating to other en sources - (annual savings 1500 GWh)
- ✓ Replacement of incandescent bulbs ((annual savings 701 GWh)
- ✓ Replacement of insulation (annual savings 350 GWh)
- ✓ Replacement of windows (annual savings 740 GWh)
- ✓ ...



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# *Programmes/Projects 2000- 2007*

- *EU (EAR) – grant € 5 M (2002-2006)*
  - € 3.75 M for programs
  - Grant for running costs of SEEA
- *WB – Serbian Energy Efficiency Project \$ 25 M (\$ 21 M - IDA loan) (2006-2010)*
  - Reconstruction of heating system in Clinical center of Serbia
  - EE retrofitting of social services buildings
- *Kingdom of Norway (2003-2007)*
  - Technical assistance to MoME, SEEA, REECs and SIEN grant around €300,000 annually
- *National Energy Efficiency Program - around € 1 mil. annually, state budget, Ministry of science RS*
  - Studies
- *Energy Efficiency in households € 10 mil, NEW, National Investment Program of Serbia,. In 2007, Ministry of Mining and Energy RS*
  - Soft loans to citizens for insulation - 2007



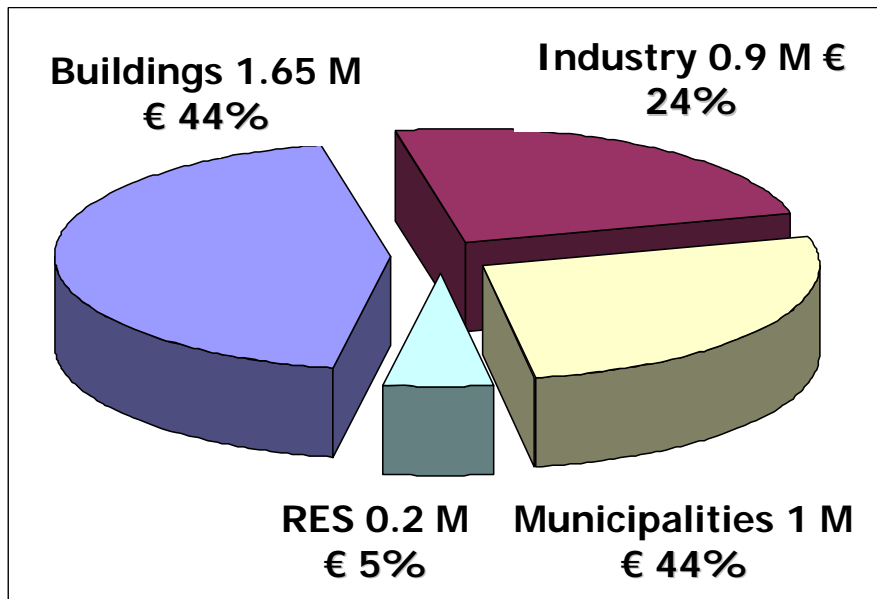
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## *SEEA Multi Annual Programs*

- **Alignment of Serbian Government Policy with energy efficiency trends / no funding**
- **Energy Efficiency in Buildings / EU (EAR)**
- **Energy Efficiency in Municipalities / EU (EAR)**
- **Energy Efficiency in the Industry / EU (EAR)**
- **Energy Efficiency in Transport / postponed / no funding**
- **Renewable Energy Sources / EU (EAR)**
- **Cogeneration / no funding**

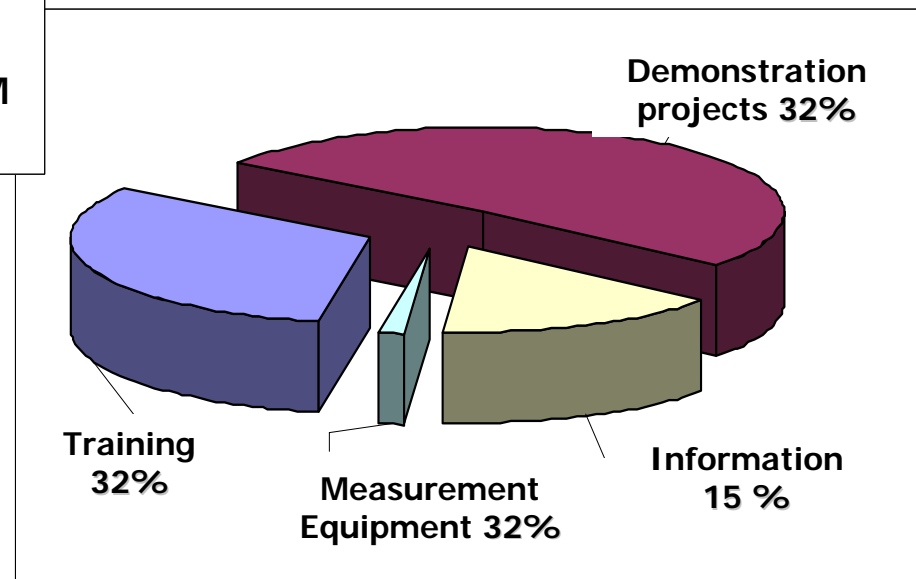


# *EU - Special Fund Structure 3.75 M €*



**Structure by sector**

**Structure by activity**



# *Training*

## **Municipal administration**

- Energy Management (46)

## **Industry**

- Energy auditing (30 trainees, 10 factories)
- Energy management (80 trainees, 3 factories)
- EMS in food industry (25 trainees, 5 factories)
- Business plans (20 trainees, 10 projects)

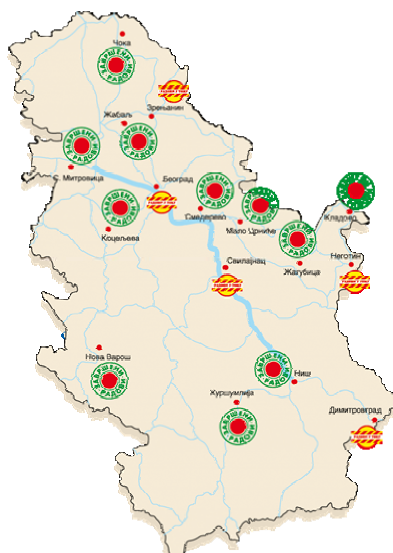
## **RES**

- 2 forums (200 participants)



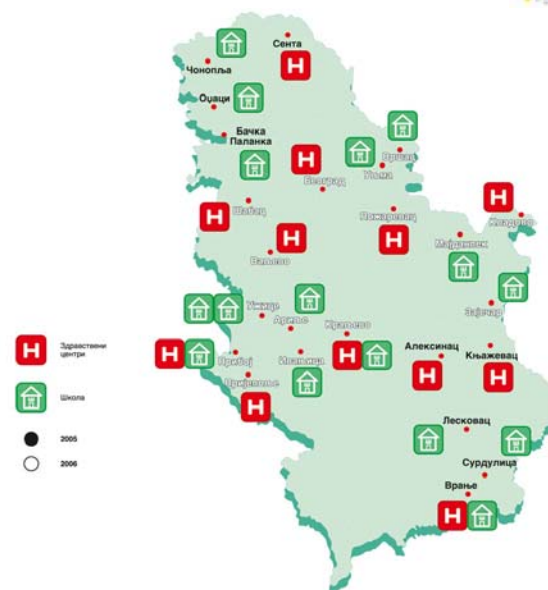
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# Demonstration in buildings



## Investments projects - Grant EU (EAR)

- **16 public buildings**
- **900,000 € grants** (max 70%)
- School, kindergarten, cultural, health and administrative buildings



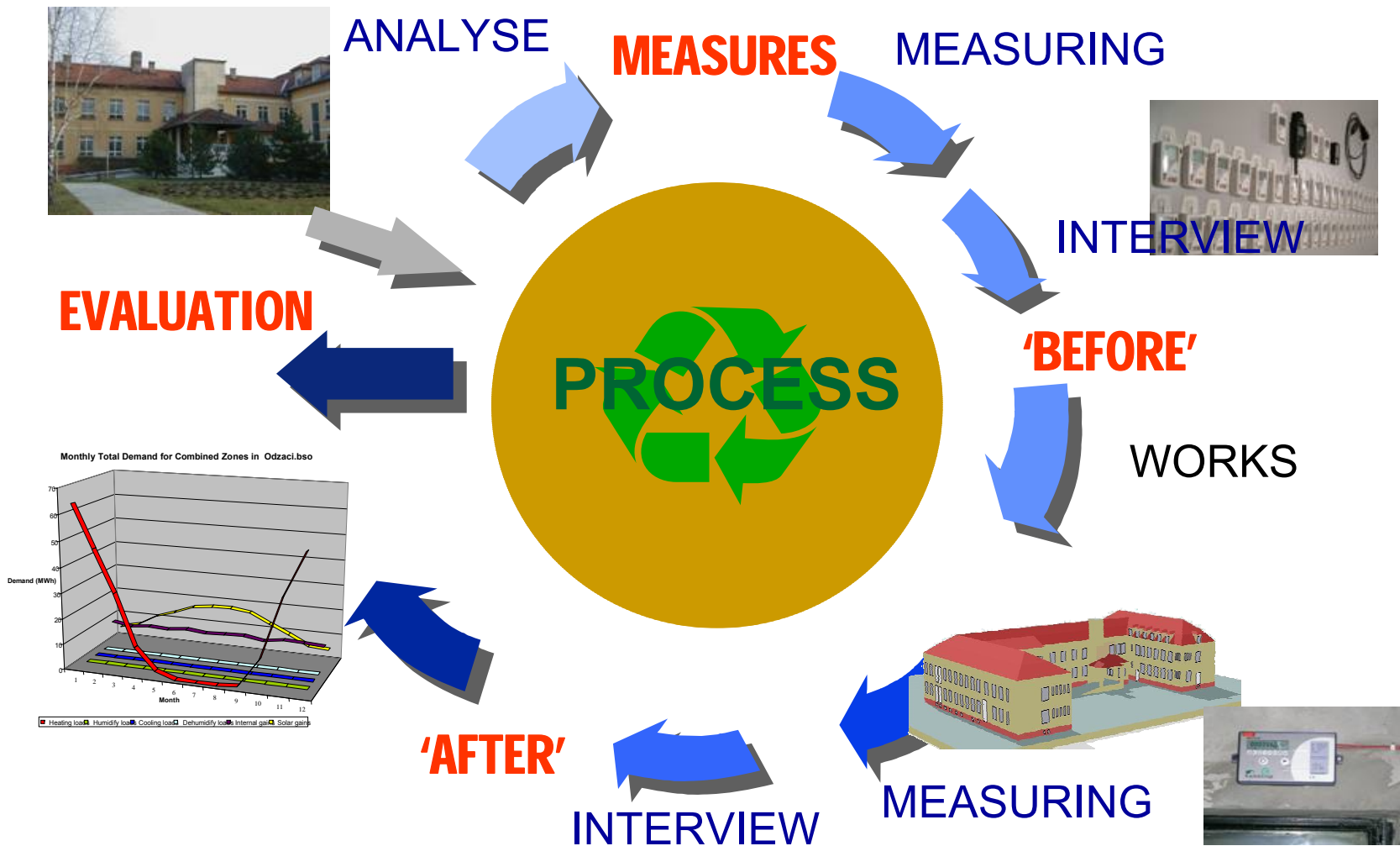
## Investment projects - WB IDA loan

- Phase 1 – **28 buildings** + Maternity hospital
- Technical monitoring
- Social monitoring
- Consultancy: BDSP-London/Energoprojekt-Entel



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# SEEP – Methodology



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# *Demonstration in Municipalities*



## Investment projects

- 11 projects
- € 381,000 grant (up to 75%)
- DHS – 4 projects
- Street lighting – 5 projects
- Water supply – 2 projects

## Energy Plans

- 3 towns
- Sombor, Jagodina, Kraljevo



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# *International commitments*

## **Treaty Establishing the Energy Community**

- Entered into force 1 July 2006
- Implementation of the Acqui on energy, competition, Environment and
- Possibly obligation for implementation of EU EE Directives will be added

## **Ratification of Kyoto Protocol**

- UNFCCC - ratified on May 12, 2001
- **Kyoto Protocol - Ratification** in Parliamentary Procedure  
**status: Non Annex 1 Country**
  - ➔ **Serbia eligible for CDM projects**
- **I National Communication** (with GHG Inventory) – under development



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# *CDM - Framework*

## **Institutional & Legal**

- **Establishment and strengthening of DNA**
- **Creating enabling legal framework for CDM**
  - ❖ **Responsible: MSEP, MoME, MIER**
  - ❖ **TA and financial Assistance: UNDP\***

## **Strategic**

- **Strategy for Implementation of CDM projects**
  - **Strategy for CDM in energy sector (RES, EE, CHP, Fuel switching) - 2008**
    - ❖ **Responsible: MoME**
    - ❖ **Donation: Norwegian Government**

- \* “Promoting investments for energy efficiency and renewable energy through carbon financing in the Republic of Serbia”



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# *CDM Projects – Awareness*

## **UNDP**

- Assessment of **CDM potential** in Serbia
- Workshop to present and discuss the results of national CDM assessment
- In-depth study of CDM potential in one selected sector
- Support development of selected CDM project ideas up to PIN stage

## **Norwegian assistance – CBF for Serbian inst**

- Capacity building of Serbian institutions (MoME, SEEA, REECs, SIEN)– PIN development
- Raising awareness of industrial companies

## **Italian assistance**

- Assessment of CDM potential in Serbia
- Capacity building of Serbian institutions



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